

N° 3333



A.D. 1911

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PROVISIONAL SPECIFICATION.

Improvements in Devices for Launching or Starting Aeroplanes.

We, MURRAY FRASER SUTER, Captain R.N., FREDERICK LEWIS MAITLAND BOOTHBY, Lieutenant R.N., and HALLIDAY GUNNING PATERSON, Engineer-Lieutenant R.N., all of H.M.S. "Hermione," Barrow-in-Furness, in the County of Lancashire, do hereby declare the nature of this invention to be as follows:—

- 5 The primary object of this invention is to provide means whereby an aeroplane can be launched or started from a ship in which there may not be sufficiently clear deck space for the plane to start under its own engines alone, but the invention may be applied with suitable modifications to starting or launching aeroplanes under other conditions.
- 10 According to this invention two parallel and preferably downwardly inclined rails are provided which are sufficiently far apart to allow the tail of the aeroplane to pass between them. A trolley running upon these rails is fitted with arms adapted to embrace and support the body or frame of the aeroplane and also, if necessary, with outwardly extending struts for the support of the wings.
- 15 The aeroplane and trolley are started along the rails by gravity or by any suitable hydraulic, pneumatic or other propelling agent, and when sufficient way has been acquired the tail is depressed in the space between the rails, or the main planes are warped or inclined so as to enable the aeroplane to rise out of the supporting arms. Provision is made whereby the trolley frees itself.
- 20 from the aeroplane on reaching the end of the rails, should the aeroplane not already have risen clear.

- If a weight is used for propelling the trolley, it may be carried at the end of a rope which passes up over a pulley on a mast and thence downwards and round a guide pulley in line with the trolley to which the other end of the rope is attached, or should the ship have no mast, the weight may be arranged to drop from the upper deck to the bottom of the ship. The falling weight may be arrested by any suitable buffer device as for example by a hydraulic recoil cylinder.

Dated this 9th day of February, 1911.

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ABEL & IMRAY,
Birkbeck Bank Chambers, London, W.C.,
Agents for the Applicants.

COMPLETE SPECIFICATION.

Improvements in Devices for Launching or Starting Aeroplanes.

- 35 We, MURRAY FRASER SUTER, Captain R.N., FREDERICK LEWIS MAITLAND BOOTHBY, Lieutenant R.N., and HALLIDAY GUNNING PATERSON, Engineer-Lieutenant R.N., all of H.M.S. "Hermione," Barrow-in-Furness, in the County of Lancashire, do hereby declare the nature of this invention to be as follows:—
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Improvements in Devices for Launching or Starting Aeroplanes.

of Lancashire, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The primary object of this invention is to provide means whereby an aeroplane can be launched or started from a ship in which there may not be sufficiently clear deck space for the plane to start under its own engines alone, but the invention may be applied with suitable modifications to starting or launching aeroplanes under other conditions.

The type of apparatus to which the invention relates comprises a pair of rails and a truck or trolley running thereon adapted to support the aeroplane, and means for imparting forward motion to the truck and releasing the aeroplane when the latter has attained the required velocity.

According to this invention two parallel and preferably downwardly inclined rails are provided which are sufficiently far apart to allow the tail of the aeroplane to pass between them. A trolley running upon these rails is fitted with arms adapted to embrace and support the body or frame of the aeroplane and also, if necessary, with outwardly extending struts for the support of the wings. The aeroplane and trolley are started along the rails by gravity, and when sufficient way has been acquired the tail is depressed, or the main planes are warped or inclined, so as to enable the aeroplane to rise out of the supporting arms. Should this not occur before the trolley reaches the end of the rails, the trolley drops into the water and is afterwards hauled on board by means of the wire or rope attached to it.

The invention is illustrated in the accompanying drawing, wherein *a* represents the body or frame of the aeroplane, *b* the inclined rails carried by stanchions clear of the ship's deck etc., *d* a trolley running on rails *b* and having supporting arms *c* on each side crutched at their upper ends to receive the trunnions *a*¹ projecting laterally from the body *a*. The outwardly extending struts which may be provided to support the wings are indicated at *f*.

When the aeroplane has acquired sufficient speed as the trolley runs out on the rails, the tail plane *g* is depressed or the main planes *h* warped or inclined so as to cause the aeroplane to rise from its supports, the space provided between the rails allowing the tail to drop.

If a weight is used for propelling the trolley, it may be carried at the end of a rope which passes up over a pulley on a mast and thence downwards and round a guide pulley in line with the trolley to which the other end of the rope is attached, or should the ship have no mast, the weight *i* may, as shewn in the drawing, be arranged to drop from the upper deck to the bottom of the ship, a rope *j* attached to the trolley being led around suitable guide pulleys *k* to the pulley blocks *l* from which the weight is supported. The falling weight may be arrested by any suitable buffer device, as for example, by a hydraulic recoil cylinder.

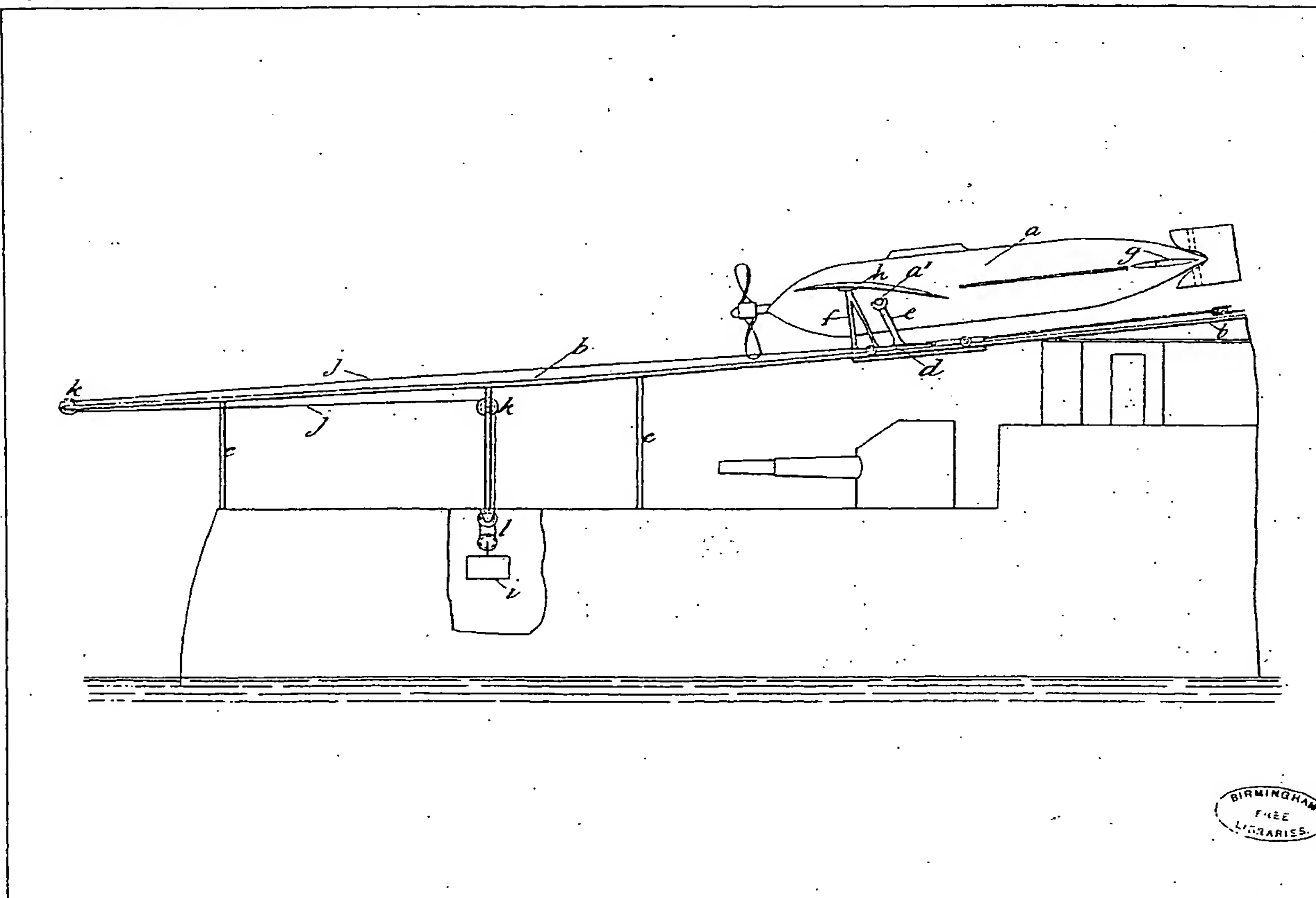
Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

An apparatus for launching or starting aeroplanes from the deck of a ship or the like, constructed and operating substantially as herein described and illustrated.

Dated this 9th day of August, 1911.

ABEL & IMRAY,
Agents for the Applicants,
Birkbeck Bank Chambers, London, W.C.

[This Drawing is a reproduction of the Original on a reduced scale.]

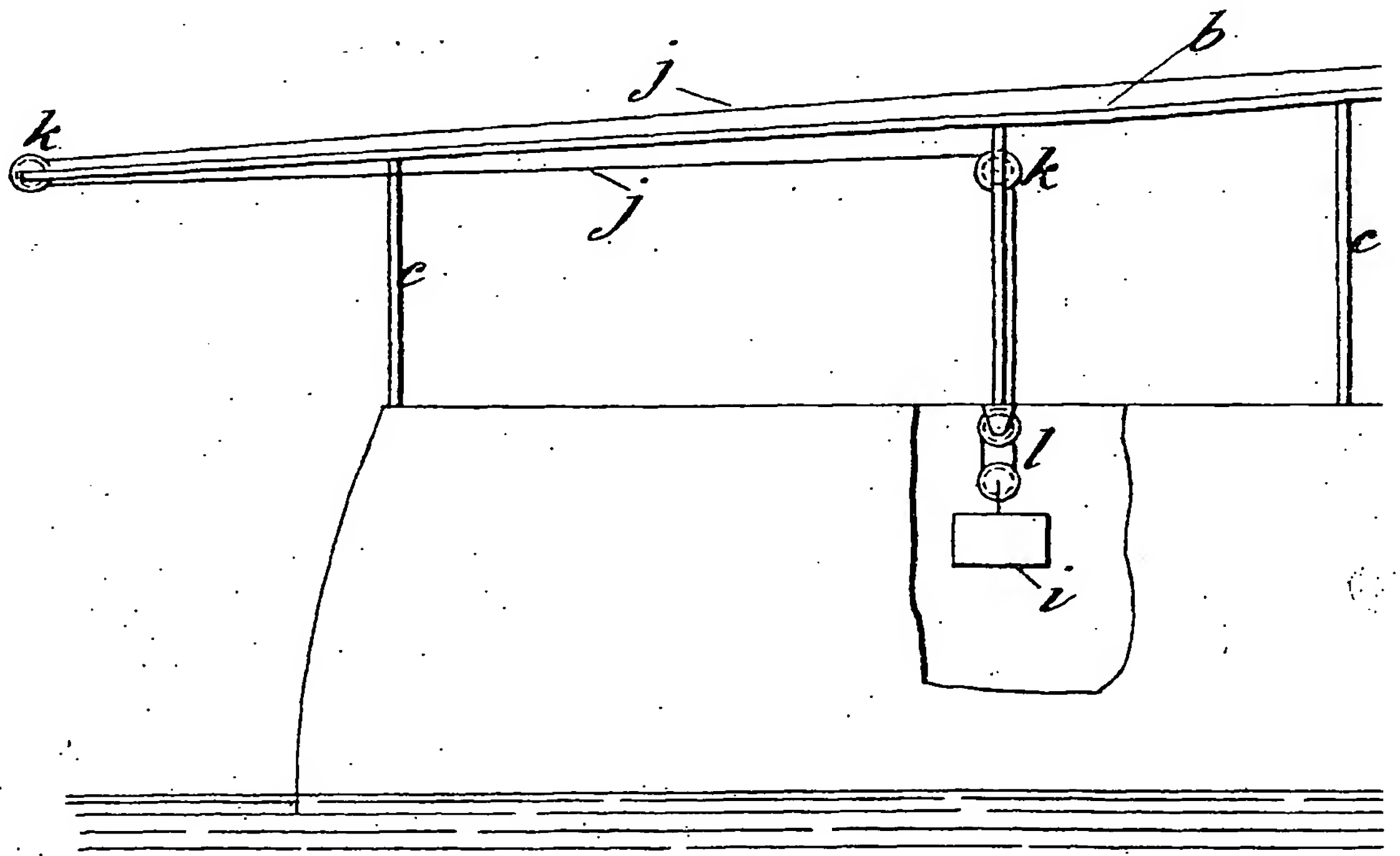


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SUETER & others' COMPLETE SPECIFICATION.

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A technical drawing of a hydrofoil boat. The boat is shown in profile, moving from left to right. It has a hull (a) and a hydrofoil (a') mounted on a support structure (f). The hydrofoil is connected to a control mechanism (e) and a cable (d). The boat is shown in a channel with a wall on the right and a structure on the left. The drawing is labeled with letters a, a', f, e, d, g, and b.

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